



## Application of Information Technology in the Flipped English Classroom in Huizhou Secondary Schools

Lanlan Shi<sup>1\*</sup>

<sup>1</sup>Faculty of English Language and Culture, Guangdong University of Foreign Studies, Guangzhou, Guangdong, China, 510420

### \*Corresponding Author

Lanlan Shi

Faculty of English Language and Culture, Guangdong University of Foreign Studies, Guangzhou, Guangdong, China, 510420

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**Abstract:** In today's era, the rapid development of information technology is driving the continuous change of classroom teaching methods. The flipped classroom with the aid of information technology can make up for the shortcomings of the traditional teaching "teacher dominates, students are passive", create a new teaching mode of "student-oriented, teacher-led", and realize the perfect integration of information technology and teaching. Based on the results of a questionnaire survey, this paper analyzes the application of information technology in the English flipped classroom of Huizhou secondary schools, and discusses the current situation, problems and solutions of information technology in the English flipped classroom of secondary schools. It is suggested that the flipped classroom based on information technology should be further popularized and applied to improve students' information literacy, enhance teachers' ability to integrate resources, improve classroom teaching effects, and truly play the role of information technology in the flipped classroom.

**Keywords:** Information technology; secondary school English; flipped classroom.

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## INTRODUCTION

With the growing popularity of information technology, the new teaching mode - flipped classroom - has gradually entered some students' classrooms. Information technology plays an indispensable role in the flipped classroom, promoting the change of teaching mode, facilitating the transformation of teachers and students' roles, and adapting to the development needs of education informatization. In the process of applying information technology to the flipped classroom, it is constantly being explored, discovered and popularised, and is in a state of transition. The government is supporting the implementation of 'smart teaching', schools are actively building 'efficient classrooms', teachers are improving their IT and media literacy, and students are improving

their sense of self-discipline and autonomy. However, in practice, some schools still lack good online sharing platforms, the quality of teaching resources varies, and students' self-control needs to be improved.

### I. The meaning and relationship between information technology and flipped classroom

(i) The meaning of information technology and the flipped classroom 1. Information Technology

Information technology is the total technology applied to receive and process information. It is the sum of the various technologies used to collect, transmit, store, process and express information. Today, information technology is used in all walks of life, including education, and has greatly improved efficiency and completion [1, 2].

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## 2. Flipping the classroom

The flipped classroom is a teaching model that flips the time spent in and out of class and changes the role of teachers and students. During the class, the teacher and students discuss problems and internalise the knowledge they have learnt, while in the classroom students use micro-lessons, learning task sheets and other learning resources to think and learn on their own. The flipped classroom increases the depth of interaction between teachers and students, develops students' divergent and innovative thinking, highlights the attributes of teacher-led organisation, and improves the overall teaching effect.

(ii) Relationship between IT and the flipped classroom Information technology is an important tool for the implementation of the flipped classroom, and the flipped classroom is a place where information technology can be used. The full application of information technology has contributed to the realisation of the flipped classroom, and the continuous improvement of the flipped classroom has contributed to the continuous development of information technology. In the classroom, the teacher uses Camtasia Studio, audio-video, PowerPoint and other recording tools to create micro-lessons. Students watch the micro-lessons repeatedly for independent learning and complete learning task sheets. Teachers and students, and students and students interact, transfer and assess through WeChat, QQ groups, Cloud Class App, Free Quizmaker, Teaching Assistant, Huizhou Nanshan School Flipped Classroom Learning Platform, Huizhou Education Resources Public Service Platform and other communication and learning platforms. In class, teachers use PPT, Prezi, Flash courseware creation and presentation tools and MindManager mind mapping tools, electronic whiteboards and distance learning to teach. With the growing maturity of information technology, it has become an essential teaching aid for the flipped classroom, adhering to the concept of "student-centred" teaching, realising the teacher's role change from that of a master to a guide, and improving the overall quality of classroom teaching.

## II. Analysis of the current situation of the application of information technology in the English flipped classroom in Huizhou secondary schools

Method could improve learning efficiency, while 22.56% thought it was effective but not obvious (Figure 2). 37.6% of teachers often use IT-based flipped classroom, while 9.6% never use it (Figure 3); 81.6% of teachers believe that IT has created a more friendly and harmonious In this study, 391 questionnaires were distributed to Huigang Middle School, Huizhou Experimental Middle School, Maishotang Middle School and Huinan School. 125 questionnaires were sent to teachers and 266 questionnaires were sent to students, and 391 questionnaires were returned. The survey sample consisted of 205 students (77%) in the first and second years, 61 students (23%) in the third year, 64 teachers with less than 5 years of teaching experience, and 61 teachers with more than 5 years of teaching experience. The main targets of this survey were the first and second year students and English teachers. The purpose of focusing the sample on this group is to avoid the junior students' judgment on the use of IT in the flipped classroom due to the mid-term examination, and this group is a suitable target for the use of IT in the flipped classroom. The survey was conducted from September to December 2018.

According to the survey, 64.29% of secondary school students had knowledge of the use of IT in the flipped classroom (Figure 1); 74.44% thought that the use of this new learning relationship between teachers and students (Figure 4).

The use of IT in the flipped classroom requires teachers to improve their overall quality, with 73.6% of teachers believing that they need to improve their media literacy and innovation skills (Figure 9); at the same time, they believe that the use of IT places higher demands on students and parents (Figure 10); in addition, the use of IT also requires strong support from schools. 73.6% of teachers believe that schools actively carry out In addition, 73.6% of the teachers believed that active training on IT in schools was an important condition for the use of IT in the flipped classroom in Huizhou (Figure 11).

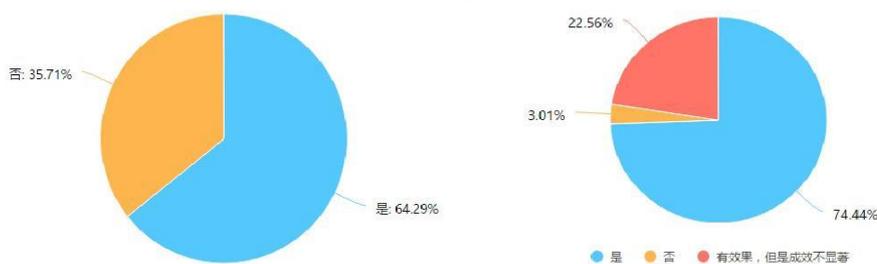


Figure 1 & 2



Figure 3

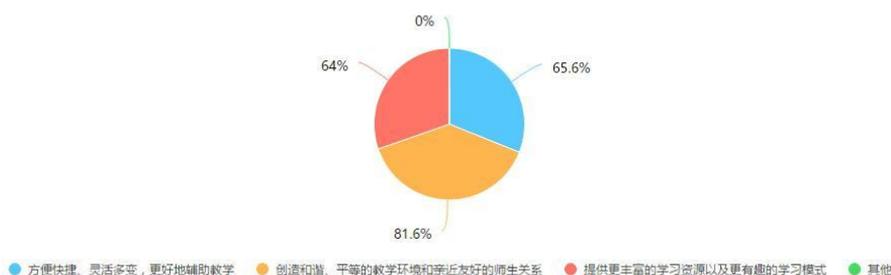


Figure 4

The data show that the current teaching situation in English classes in Huizhou is as follows:

More than half of the students were able to study independently with the help of teaching tools, but 42.11% of the students did not study in advance and only listened to the teacher in class (Figure 5); students' motivation played a significant role in the teaching process. In the survey, 71.8% of students thought that IT could motivate them, while 26.3%

thought that the effect was not obvious (Figure 7). The percentage of teachers who use IT to analyse students' independent learning before class is 74.4%, and more than 50% of teachers use IT to design in-class teaching activities (see Figure 6). 64.8% of teachers listen to students' reports and comments, and 58.4% of teachers observe students' performance and record problems that arise (see Figure 8).



Figure 5 & 6

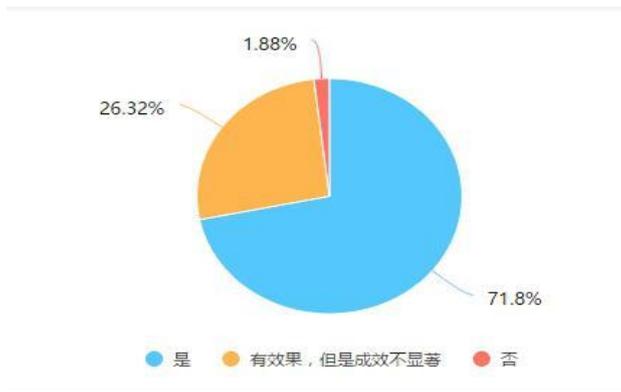


Figure 7

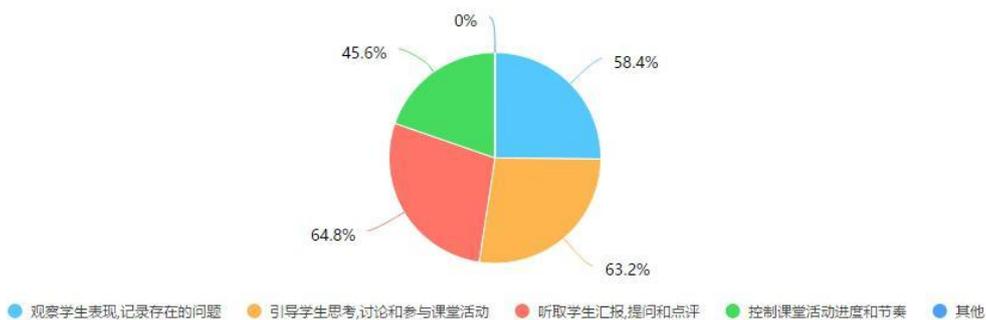


Figure 8



Figure 9



Figure 10

50.7% of students felt that they had improved their self-learning skills in the flipped classroom model with the use of IT (Figure 11). In the integration of IT and teaching, it is important to understand the essence of teaching and learning,

with 80.8% of students believing that they should not put the cart before the horse in the pursuit of technology and 43.2% expressing their desire for newer and more advanced technologies to support teaching and learning (Figure 12).



Figure 11

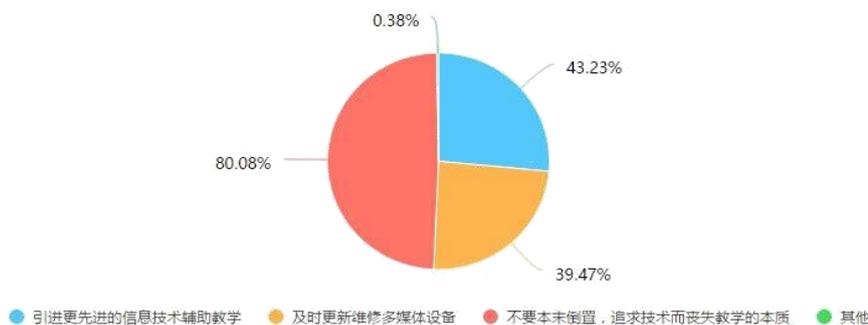


Figure 12

### III. Problems of Information Technology in the Flipped English Classroom of Huizhou Secondary Schools

(i) Increase the pressure on students who are less self-motivated to learn

According to the questionnaire survey, we found that nearly half of the students in the questionnaire were still unable to do their own pre-study before class, and had to passively accept what the teacher said in class. As a result, this group of students may not be able to keep up with the teacher's teaching, and their academic performance may even be lower than before. On the one hand, this is because the teacher starts the lesson by following the tasks or questions assigned to the students. Compared to students who actively discuss in the group, collect relevant information and dare to ask questions before the lesson, students who are not willing to prepare themselves before the lesson will naturally miss a lot of knowledge points and cannot follow the teacher's ideas well in the classroom. On the other hand, students who prepare themselves before class are able to use various search engines or apps on the internet to find relevant content, which in time expands their knowledge. On the other hand, we have found that many students who get their phones from their parents do not use them to search for relevant information, but rather use learning as an excuse to play games, which is one of the reasons why many students' academic performance decreases rather than improves with the long-term use of flipped

classrooms. In an age where communication tools such as WeChat, Weibo and online games are widely used, students need to resist the temptation to use online tools to assist them in their learning tasks, but this is still a challenge for many students to overcome.

(ii) Increased teaching difficulty and teaching pressure on teachers

The questionnaires showed that the majority of teachers listened to their students in class, observed their performance and commented on it accordingly. At the same time, teachers reported that the use of flipped classrooms has increased the pressure on teachers. Firstly, teachers have to change their role in the flipped classroom to one of guiding and inspiring students to identify questions and try to find answers. However, for some students who are not highly motivated to learn, no matter how hard the teacher tries to flip the classroom, the results are still very weak, which increases the resistance to flipping the classroom in practice. Furthermore, flipped classrooms require a high level of knowledge and experience from teachers, as they are a more personalised mode of teaching than traditional teaching, where teachers need to observe students' reactions and make their own plans for the next step. [5] In addition, some teachers are reluctant to change their teaching plans and even reject the new teaching model, which makes it more difficult to promote the flipped classroom.

(iii) Teachers' ability to handle information technology and the availability of teaching resources have yet to be improved

In the questionnaire, more than half of the teachers felt that they needed to improve their media literacy and innovation skills, and expressed the importance of being proficient in the use of various information technologies for their teaching activities. However, the use of flipped classroom requires teachers to prepare teaching materials before the class, select appropriate pictures and audio materials through internet search and use their own drawing tools, and create relevant teaching videos to demonstrate to students in class. The teacher needs to prepare the teaching materials before the lesson by searching the internet and using drawing tools. At the same time, the teaching materials and videos prepared by the teachers need to be presented on slides, but there are still some schools where the teaching equipment is poor and the equipment often has problems such as unclear pictures and poor sound quality, which affects the normal teaching activities. There is also a lack of basic teaching equipment in some schools in remote areas [5, 6]. Therefore, the school needs to follow up and improve the teachers' ability to handle information, teaching resources and teaching environment.

#### **IV. Countermeasures for the Application of Information Technology in the English Flipped Classroom of Huizhou Secondary Schools**

(1) Break the original traditional teaching concept and improve the effectiveness of the flipped classroom

One of the main features of the flipped classroom is that it changes the traditional teaching mode from a teacher-led "indoctrination" learning mode to student-led independent learning. Traditional teaching is teacher-driven, with students learning passively, with insufficient interaction between teachers and students, and a lack of a strong learning environment. The flipped classroom is a new teaching model that incorporates information technology, increasing teacher-student interaction and transforming the roles of teachers and students, leaving the classroom more open to group discussion and collaboration. The use of online teaching allows students to learn independently before class, to complete their knowledge and understanding in advance, to discuss and reflect on their knowledge in class, and to internalise and sublimate their knowledge after class. Among the valid questionnaires collected in this study, the traditional teaching mode is still commonly used in Huizhou. However, in the context of Internet Plus, the traditional teaching model is no longer suitable for personalised English teaching. Nowadays, the combination of flipped classroom and

information technology is conducive to breaking through time and space and geographical limitations, giving students more time for independent learning before and after class, reconstructing the teaching structure, enriching the teaching content, improving teaching efficiency, achieving optimal allocation of resources, stimulating students' interest in learning English, providing a more convenient way to learn English knowledge, and cultivating independent learning awareness and ability [3].

(2) To stimulate students' enthusiasm for learning English and to enhance their autonomy and enthusiasm

Interest is the best motivation for students to focus on learning. Teachers focus on the different learning characteristics of students, orientate children's English learning in a multidimensional and multi-faceted way, and achieve personalised independent learning. Teachers designate teaching and learning programmes that are innovative and visual in their approach. The flipped classroom transforms the traditional textbook- and teacher-led approach to teaching, and now incorporates information technology into English teaching, using micro-video and courseware as the main carriers for teaching knowledge, which is more appropriate to today's teaching model. The flipped classroom makes the teaching content vivid, easy to understand and visualised. Through multimedia, the boring contents of books are turned into refreshing images, stimulating students with multiple senses, creating attractive English learning situations for students, stimulating their interest and fully mobilising their enthusiasm for learning [4].

The flipped classroom requires the use of mobile networks such as the Internet. Students at secondary school level are less able to control themselves and resist temptation, and are unable to control the extent and duration of their Internet use, which can lead to addiction and vision loss. Schools can build in-school online platforms and regional learning platforms to limit and monitor internet use and prevent students from becoming addicted to the internet in the name of learning. By maximising the use of resources and sharing the most cutting-edge, advanced and diverse teaching methods, the quality of English education and teaching can be improved, and students can be more independent and motivated to learn.

(c) Strengthen the training of teachers, improve the teaching environment and provide more teaching resources

Information technology, such as online learning resources, multimedia lectures and social networking software, provides a platform and rich

teaching resources for students' English learning and teachers' teaching. In a flipped classroom, teachers change from being leaders to being designers of the curriculum, guides of students and participants in learning, but there are major problems with teaching equipment and resources, as well as with teachers' professional competence and use of information technology. Most of the teaching equipment in schools is poorly equipped, outdated, old and limited in function. Many older teachers are not familiar with electronic equipment and use it less often. Schools need to organise training for teachers in the operation of information technology, and teachers need to keep up with the times, constantly learning and mastering new information technology, and teachers need to learn to create micro-lesson animations, Flash and other curriculum resources. Teachers should also be able to teach students according to their abilities, allocate class time appropriately and answer students' questions. The school should also update the assessment system for teachers and students accordingly, and use the rich network resources as a base to improve and optimise the teaching resources and environment, and actively develop students' comprehensive English literacy skills.

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